

# Match Prediction using classification, Hero Suggestion & Best Path Analytics over Jungling in Defense of the Ancients 2(DOTA 2)

Patlolla, Akhil Reddy  
Computer Science Dept.  
Northern Illinois University  
apatlolla@niu.edu

**Abstract** – In the game play of DOTA2 i.e. the players coordinate among them and fight with another team. The factor which effect the game play starts from the hero picking phase, lane selection and item build along with farming in the neutral camps. Hero attributes i.e. strength, agility, intelligence. Here optimizing the path form camp to camp and destroying the ancient is the main goal of the game. Suggesting which hero goes well with another hero.

## **Keyword** –

DOTA2, MOBA, DECISION TREE, multi-player, skill, special analytics, player modeling, Neural Networks.

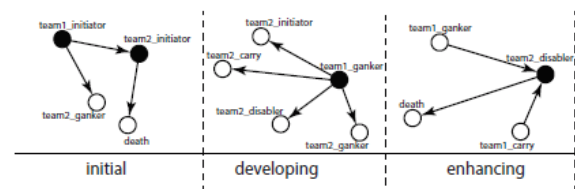
## I. Introduction

Multiple online battle arena(MOBA) game implementing real time stagey game in which two teams, five players each. An interesting part of the game is choosing a hero, players must look for another hero who goes in sync with other hero. Here effective hero pick where teammates have parallel skill level. There are around 107 heroes to choose and five heroes per team. Where picking up the best team possible

combination. This involves heavy machine learning techniques.

## II. Mechanics

In MOBA games, there are two types of combat: farming and ganking. Farming refers to the point of killing weaker units called creeps. By killing creep's players gain gold and experience. This helps to buy items which helps to increase attributes and special powers depending on the situation. Moving along the map and killing enemy is ganking(gang-killing). Like farming ganking is a better way to gain experience and gold which helps to gain advantage in game.



## III. Jungling in DOTA2

There are neutral creeps across the map and killing them will also result in experience gain and gold. The camps respawn at interval of 60 sec if don't have vision in that spot then they respawn if we are there in that location

or if sentry wards are planted in the location of the camp, then they will not respawn. Hence, there is decision making problem saying moving from one camp to other camp takes time and to get to other camp with in a time interval.



#### IV. Hero Selection

In a team, there are specific role on the whole team. There are many different role that a player can.

			
Class	Strength	Agility	Intelligence
Strength	25	18	18
Agility	15	23	16
Intelligence	17	21	27
Game role	Durable Initiator Lane support Disabler	Carry Escape Pusher	Nuker Disabler Support

- Carry: carry's are capable of doing a large amount of damage once they have had a chance to develop. This means that they require protection early in the game but are responsible for most of the damage done later in the game.

- Initiator: Initiators are characters that usually start large combats by doing large AOE (Area of effect) or usually abilities that can affect the positioning of the enemy team.
- Disabler: They have the ability to hinder the functionality of the enemy team by disabling them or controlling them in some way.
- Tank: The tank has the ability to absorb copious amounts of damage. This enables other members of the team to live longer in combat.
- Ganker: The ganker has the ability to deal a large amount of damage quickly. Their main goal is to quickly kill enemies so that combat ends as soon as possible.



There are various locations where players can gank and depending on the time and locations and timing

## V. Winning strategies

There are location where players play for farming and ganking but for main game there are three main sector in the map i.e.



Top, Mid, Bot two sides are dire and radiant represented by green and red. Mid has a balanced situations. All the squares in the map are towers and left bottom corner and right top corner from the above picture are the Ancient whole point of game rotates around this to defend the ancient building.

## VI. Conclusion

The whole data set of matches is pulled from Valve's Steam web API which satisfies the levels of players of different level.

- The game mode All pick, Single Draft, Captain's mode, there is good

change of all hero's showing up in the match

- The skill level of very high MMR (Match Making Rank) which ensures all players in a match are of similar skill level.
- No player leaves before the match is completed which effect the whole gameplay

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